Student Name:
School Name:
Teacher/Class:

Montana Comprehensive Assessment System (MontCAS CRT)

Grade 4
Common Released Items
Spring 2009

OPI

OFFICE OF PUBLIC INSTRUCTION

General Directions

This test contains nine sessions: three in reading, three in mathematics, and three in science. The sessions are made up of multiple-choice questions and questions for which you must show your work or write out your answers. Write your answers to all of the questions in your Student Response Booklet. For the reading parts of the test, read each selection before answering the questions.

For each multiple-choice question, choose the best answer. Fill in the bubble in your Student Response Booklet that corresponds to your answer choice for that question.

Some questions ask you to show your work or to write out your answers. Write your answers to these questions in the spaces provided in your Student Response Booklet. Your answers must fit in the spaces provided. Any part of an answer outside the box might not be scored.

Be sure to answer all parts of each question, and to answer completely. For example, if a question asks you to explain your reasoning or show your work, be sure to do so. You can receive points for a partially correct answer, so try to answer every question.

For information, contact Measured Progress, P.O. Box 1217, Dover, NH 03821-1217.
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Reading
Session 1

This test session includes a reading selection and multiple-choice questions. After you read the selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read this Yoruba tale from Africa. Then answer the questions that follow.

A Quarrel Between Friends

Once there were two farmers, Olaleye and Omoteji, who lived next door to one another. They also were best friends. But one neighbor wanted to see just how important their friendship really was.

This man made himself a hat—red on one side and green on the other. He put it on and then strolled down a path between the two farms. When he passed Omoteji on his left he said, "Good morning, Omoteji."

"Good morning," the farmer replied. "What a nice red hat you are wearing."

"Thank you very much," the man answered. "Well, I will see you later."

Further down the path, he saw Olaleye on his right, weeding his yams. "Good morning, Olaleye. How are you this morning?"

"Oh, good morning," Olaleye responded. "My, that's a lovely green hat."

"Thank you. I made it myself, you know. See you later, Olaleye."

At lunchtime the two friends sat together by the path and ate. After chatting about many things, Olaleye said: "Did you see our friend's new green hat this morning? He said he made it himself."

"Don't you mean red hat," corrected Omoteji.

10 "No, it was definitely a green hat. Perhaps the sun was in your eyes."

"But I specifically remarked about the red color and he did not say it was green. You must be the one who is mistaken."

"But I also commented on the color. It most certainly was green."

Each continued to insist that he was right about the correct color of the hat. Soon, they had both become very angry and for the first time ever they were shouting at each other. Just as Omoteji was ready to grab Olaleye, the neighbor returned.

"Why are you arguing?" he asked. As he

Please go on to the next page.

spoke, he walked between the two so that each farmer saw the other side of the hat from the one that he had seen that morning.

Immediately, the two stopped fighting. "Oh, my friend, I am sorry," said Olaleye. "You were right. The hat is red."

"No. You were right," said Omoteji. "The hat is green."

They might have started quarreling again if their neighbor had not taken off his hat and showed both sides to them.

"My friends, please don't fight," he said. "As you can see, my hat is both colors—red on one side and green on the other, but the color is not important. What's important is that you were about to let a simple thing like the color of a hat destroy your friendship."

"Omoteji," said Olaleye, "I have been very foolish. This will never happen again. From now on, all I care about is having a good friend like you."

"And I, too, have been foolish," replied Omoteji. "I promise to never fight with you again."

And they never did.

Mark your answers in the section marked "Reading—Session 1" in your Student Response Booklet.

1. What are the farmers **most likely** doing when the neighbor first goes down the path?

   A. starting their morning chores
   B. eating their lunch together
   C. talking with each other
   D. walking down another path

2. Why does the neighbor show the farmers his new hat?

   A. to see if the farmers can notice things
   B. to test the friendship between the two farmers
   C. to see if the farmers act in a friendly way toward him
   D. to give the farmers a break from doing their morning work

Please go on to the next page.

3. In paragraph 10, Olaleye says to Omoteji, "Perhaps the sun was in your eyes." What does Olaleye **most likely** mean?

   A. "Did you see the neighbor's bright hat?"
   B. "Are your eyes the color of the sun?"
   C. "Did the sun make the hat look different?"
   D. "What color is the sun in the morning?"

4. In this tale, the word quarrel means the **same** as

   A. argue.
   B. prove.
   C. reply.
   D. talk.

5. What will **most likely** happen next in this tale?

   A. The neighbor will make hats for Omoteji and Olaleye.
   B. Omoteji and Olaleye will become even better friends.
   C. The neighbor will find other ways to trick Omoteji and Olaleye.
   D. Omoteji and Olaleye will learn how to make nice hats.

6. What is this tale **mainly** about?

   A. two farmers who learn the value of hard work
   B. a neighbor who makes colorful new hats
   C. two farmers who eat together every day
   D. a neighbor who teaches the value of friendship

7. What is the **main** lesson in this tale?

   A. Do not argue about silly things.
   B. Look closely at everything.
   C. Get help when solving problems.
   D. Never speak to strangers.

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Reading
Session 2

No items released from this session in 2008/2009.

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Reading
Session 3

This test session includes reading selections, multiple-choice questions, and a question for which you must write out your answer. After you read each selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read this passage about marbles. Then answer the questions that follow.

Moving Marbles

by Robert Hirschfeld and Nancy White

Inertia means that a rolling ball on a smooth, level surface will roll forever if nothing stops it. (In fact, friction and air pushing against the moving ball will eventually bring it to a stop.) But interesting things happen when a motionless object gets in the way of a moving one. Try this and see for yourself.

What You Need
Two long straight pieces of wood (yardsticks work well)
Tabletop or floor
Tape
Six or more marbles of equal size

What You Do

1 Tape the yardsticks to the tabletop so they're parallel and about ½" (1 cm) apart.

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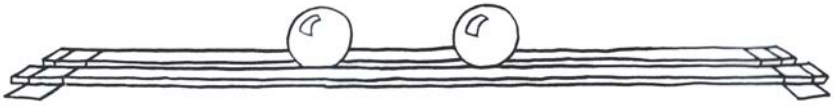
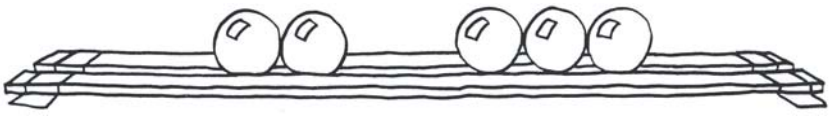
2 Put two marbles in the middle of the track between the yardsticks, several inches apart.

3 Flick a marble so that it rolls and hits the other one. What happens to the two marbles? The one that had been rolling stops. The one that had been still now rolls! The momentum of the rolling marble transfers to the other one, stopping the first and setting the second in motion.
Momentum can transfer from one object to another.



4 Now put two marbles on the track so they touch, and a third several inches away. Flick the single marble into the other two. This time, the rolling marble stops, the middle one stays put, and the third one rolls. The momentum went through the second marble into the third. The amount of momentum is only enough to move one marble at the speed of the first marble.
Momentum can pass from one object, through a second, and into a third.

5 Try other combinations: two marbles into three still marbles, or three into three. You'll find that however many marbles you set in motion, the same number will be made to roll when they're hit.
The total amount of momentum at the beginning will stay the same.



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Mark your answers in the section marked "Reading—Session 3" in your Student Response Booklet.

55. Based on the first paragraph, what will eventually bring a rolling ball to a stop?

A. air and friction
B. friction and inertia
C. air and momentum
D. momentum and inertia

56. Based on the experiment in step 4, what happens to the middle marble after the rolling marble hits it?

A. It rolls forward slowly.
B. It does not roll.
C. It rolls backward.
D. It jumps off the track.

57. What is the **main** purpose of step 5?

A. to give some reasons to do more experiments
B. to show how to get more marbles to stay still
C. to explain that the amount of momentum is always the same
D. to describe the other experiments in greater detail

58. What is the **most likely** reason the authors included a sentence in *italics* after each experiment in steps 3, 4, and 5?

A. to explain the best way to complete the experiment
B. to give an opinion about why each experiment is useful
C. to describe how the marbles move in each experiment
D. to describe what the experiment shows about momentum

Please go on to the next page.

59. The **main** purpose of the pictures is to show

A. how to roll the marbles.
B. why inertia allows objects to move.
C. how to set up each experiment.
D. why the marbles must be of equal size.

60. The **main** purpose of this passage is to explain

A. how momentum works.
B. how to roll round objects.
C. how round objects can roll forever.
D. how momentum is different from inertia.

61. Which source would **most likely** contain experiments about momentum?

A. a dictionary
B. a mathematics book
C. a science book
D. a thesaurus

Please go on to the next page.

Read this passage about a girl named Cody. Then answer the questions that follow.

The passage used in this prompt was taken from *Girls to the Rescue Book #2* by Douglas Dosson (1995, Meadowbrook Press). Due to copyright restrictions, we are unable to reprint the passage in this document.

Please go on to the next page.

Mark your answers in the section marked "Reading—Session 3" in your Student Response Booklet.

69. Why does Cody name the colt Stardust?

A. His coat looks shiny.
B. He has spots on his forehead.
C. His eyes seem to twinkle.
D. He was born during the night.

70. How do Stardust and Cody become friends?

A. Cody treats Stardust like a puppy.
B. Cody spends all her time with Stardust.
C. Cody teaches Stardust his name.
D. Cody brushes the spots on Stardust.

71. In paragraph 4, what do the words "vast Rocky Mountain peaks rising in the distance" **mostly** help the reader understand?

A. where the passage takes place
B. why the winds blow so strongly
C. what winter is like in Montana
D. why Cody likes living in Montana

72. Cody feeds Stardust carrots and apples because she wants to

A. spoil Stardust.
B. reward Stardust.
C. make Stardust strong.
D. give Stardust healthy foods.

Please go on to the next page.

73. In paragraph 8, the phrase "nip in the air" **mainly** suggests that

A. snow is falling.
B. wind is blowing.
C. geese are flying overhead.
D. cold weather is coming.

74. How does Cody know the horses are headed for the canyon?

A. She sees tracks in the snow.
B. She sees a large hole in the fence.
C. She hears the sound of galloping.
D. She hears the snap of the oak branch.

75. The **main** purpose of paragraph 22 is to show

A. why Nick is popular.
B. why the horses are safe.
C. what Nick is thinking.
D. when the boys get paid.

Use the dictionary entry below to answer question 76.

> **set** *v* **1.** to arrange: *to set a dinner table* **2.** to put something in a place: *to set the box on the floor* **3.** to begin: *to set out on a trip to the market* **4.** to put a clock on the correct time: *to set the clock ahead one hour*

76. Which meaning of the word <u>set</u> is used in paragraph 25?

A. meaning 1
B. meaning 2
C. meaning 3
D. meaning 4

77. Which word **best** describes the way Cody feels at the end of the passage?

A. calm
B. proud
C. relieved
D. tired

Please go on to the next page.

78. What is the **main** purpose of this passage?

A. to explain how to raise a young colt
B. to entertain with a story about a young girl
C. to prove that snowstorms can be dangerous
D. to describe a normal snowstorm in Montana

79. Which book would **most likely** contain stories like "Cody's Wooden Whistle"?

A. *Stories of American Ranches*
B. *How to Carve Wooden Whistles*
C. *Stories about Making Friends*
D. *Photos of Winters in Montana*

80. Which source would contain the **most** detailed map of Montana?

A. an atlas
B. a dictionary
C. an encyclopedia
D. a thesaurus

Write your answer in the space provided for it in your Student Response Booklet.

81. Explain how Cody is a good friend to Stardust. Use information from the passage to support your answer.

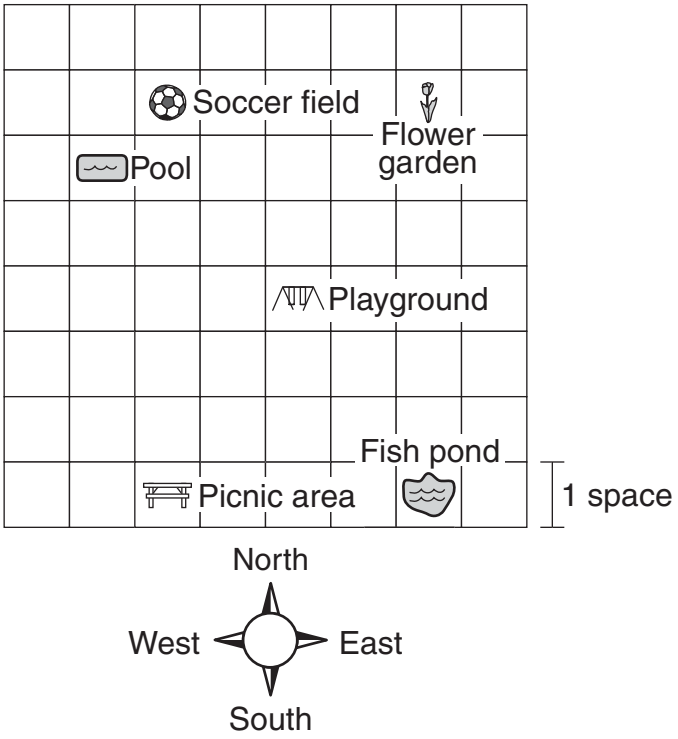
Please STOP. Do not go on to the next page.

Mathematics
Session 1 (No Calculator)

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers in the section marked "Mathematics—Session 1 (No Calculator)" in your Student Response Booklet.

4. The map below shows the locations of some places at Mountain Park.



Henry was at the playground. He went 3 spaces north and 2 spaces west. Where is Henry now?

A. the flower garden
B. the picnic area
C. the pool
D. the soccer field

12. The chart below shows the number of chocolate chips some students counted in their trail mix.

Trail Mix

Student	Number of Chocolate Chips
Kristin	6
Edward	12
Megan	9
Daniel	9
George	13
Stephanie	9
Angela	12

What is the most common number of chocolate chips the students counted?

A. 9
B. 10
C. 12
D. 13

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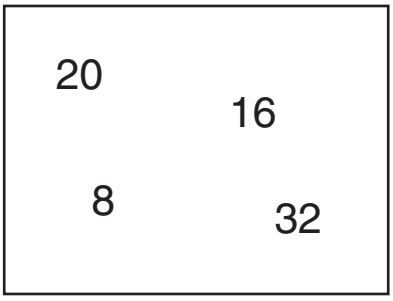
18. The numbers in the box below are all multiples of 4.



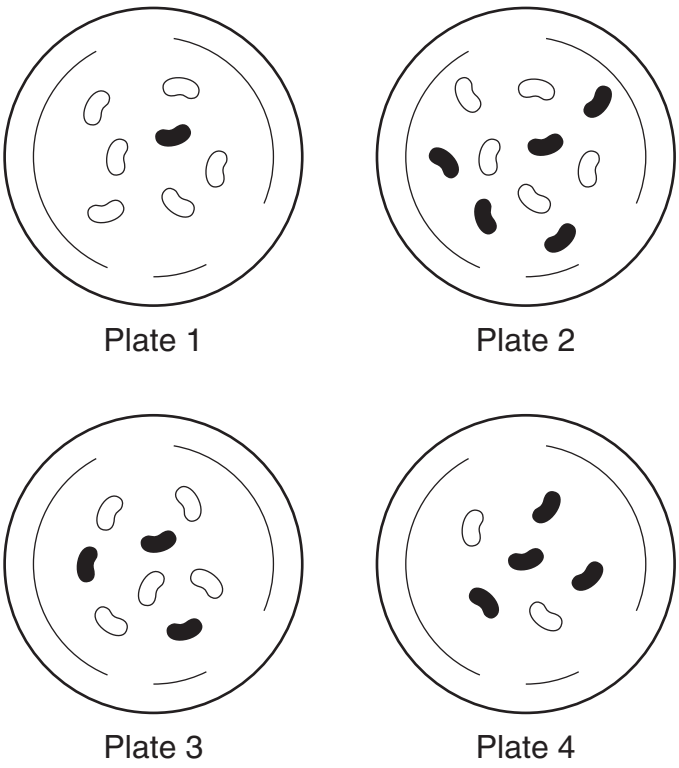
Which number is another multiple of 4?

A. 12
B. 14
C. 26
D. 38

19. Mrs. Lopez gave 348 pennies to 4 students. She gave the same number of pennies to each student. How many pennies did Mrs. Lopez give each student?

A. 82
B. 86
C. 87
D. 97

20. There are black and white jelly beans on each of the four plates shown below.



Jackie picks a jelly bean from one of the plates without looking. Which plate is Jackie **most likely** to pick a black jelly bean from?

A. Plate 1
B. Plate 2
C. Plate 3
D. Plate 4

Please go on to the next page.

21. Look at the number sentence below.

$$3 \times 1 \times 2 = \square \times 2 \times 1$$

What number makes this number sentence true?

A. 2
B. 3
C. 6
D. 12

22. The population of Montana is shown below.

nine hundred thirty-five thousand, six hundred seventy

Which numeral shows the population of Montana?

A. 93,567
B. 900,370
C. 935,607
D. 935,670

Write your answers in the spaces provided in your Student Response Booklet. Show all of your work.

23. Look at the number sentence below.

$$\boxed{?} - 210 = 290$$

What number belongs in the box?

24. Multiply:

$83 \times 45 =$

Please go on to the next page.

Write your answer in the space provided for it in your Student Response Booklet. Show all of your work.

25. The clock below shows what time a movie will start.

a. What time will the movie start?

The movie is 105 minutes long.

b. How long is the movie in hours and minutes? Show or explain how you found your answer.

c. What time will the movie end? Show or explain how you found your answer.

Please STOP. Do not go on to the next page.

STOP

Mathematics
Session 2 (No Calculator)

This test session includes multiple-choice questions. You may NOT use a calculator during this session.

Mark your answers in the section marked "Mathematics—Session 2 (No Calculator)" in your Student Response Booklet.

27. Which number has the **digit 6** in the ten thousands place?

A. 615,743
B. 564,127
C. 326,985
D. 198,560

30. Ella skip-counted on a number line.

- She started with an odd number.
- Then she counted by 3s.

Ella circled each number she counted on the number line. Which number line could be Ella's?

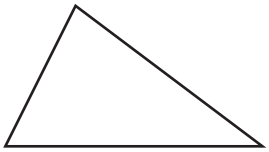
A. 61 (62) 63 (64) 65 (66) 67 (68) 69 (70) 71 (72) 73

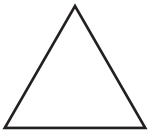
B. (61) 62 (63) 64 (65) 66 (67) 68 (69) 70 (71) 72 (73)

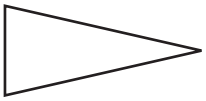
C. (61) 62 (63) 64 (65) 66 (67) 68 (69) 70 (71) 72 (73)

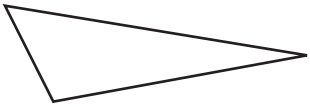
D. (61) 62 (63) 64 (65) 66 (67) 68 (69) 70 (71) 72 (73)

31. Which triangle has the **most** lines of symmetry?

A. 

B. 

C. 

D. 

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36. Hector took $10.00 to a store. He spent $2.39 on a bag of pretzels. How much money does Hector have left?

A. $6.71

B. $7.61

C. $8.39

D. $8.71

37. Kelly scored 10 points or more in **most** of her basketball games. Which list of scores could be Kelly's?

A. 7, 5, 8, 12, 9

B. 10, 8, 9, 13, 7

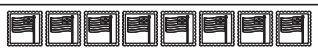
C. 5, 10, 8, 10, 9

D. 8, 12, 11, 13, 11

Please go on to the next page.

40. Carrie started a stamp collection. Each week she put 6 stamps in her collection. Which pictograph shows the total number of stamps Carrie had at the end of each week?

A.

Week	Total Number of Stamps
1	
2	
3	

Key
 stands for 2 stamps

B.

Week	Total Number of Stamps
1	
2	
3	

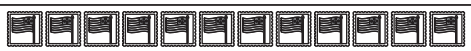
Key
 stands for 2 stamps

C.

Week	Total Number of Stamps
1	
2	
3	

Key
 stands for 2 stamps

D.

Week	Total Number of Stamps
1	
2	
3	

Key
 stands for 2 stamps

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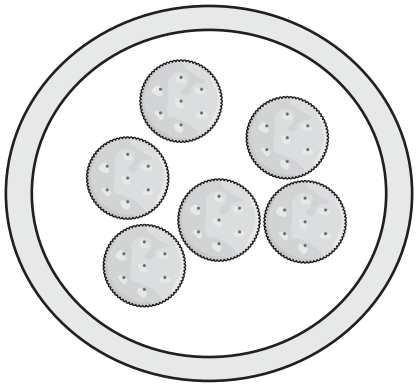
41. Lucy and Gretchen had the 6 crackers on the plate shown below.



Lucy ate $\frac{3}{6}$ of the crackers. Gretchen ate $\frac{2}{6}$ of the crackers. What fraction of the crackers did they eat altogether?

A. $\frac{1}{12}$

B. $\frac{1}{6}$

C. $\frac{5}{12}$

D. $\frac{5}{6}$

42. Jill has 72 pretzels. She gave some pretzels away. Now she has 24 pretzels. Which number sentence can be used to find the number of pretzels Jill gave away?

A. $24 - \square = 72$

B. $\square - 24 = 72$

C. $72 - \square = 24$

D. $72 + \square = 24$

43. Jane shaded the rectangle shown below to show a decimal.

Which decimal did Jane show?

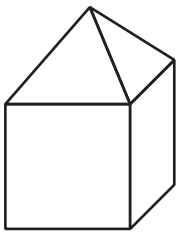
A. 0.08

B. 0.8

C. 8

D. 8.10

46. Kelly made the shape shown below by gluing together a cube and a square pyramid.



How many edges does the shape have?

A. 10

B. 12

C. 16

D. 20

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Mathematics
Session 3 (Calculator)

This test session includes multiple-choice questions. You may use a calculator during this session.

Mark your answers in the section marked "Mathematics—Session 3 (Calculator)" in your Student Response Booklet.

52. Mr. Chen bought 6 boxes of erasers for his class. Each box has 15 erasers. Which number sentence can be used to find how many erasers Mr. Chen bought in all?

A. $6 + 15 = \square$
B. $6 \times 15 = \square$
C. $15 \div 6 = \square$
D. $15 - 6 = \square$

53. The numbers below follow a pattern.

$\underline{?}$, 16, 20, 24, 28, 32

What number is missing from the pattern?

A. 4
B. 8
C. 10
D. 12

55. Look at the number sentences below.

$$5 - 3 = x$$

$$x + 6 = y$$

In these number sentences, x represents the same number. What number does y represent?

A. 2
B. 4
C. 6
D. 8

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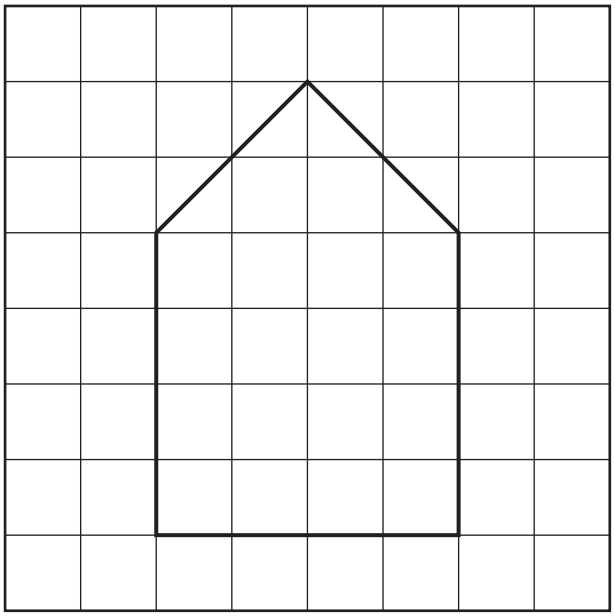
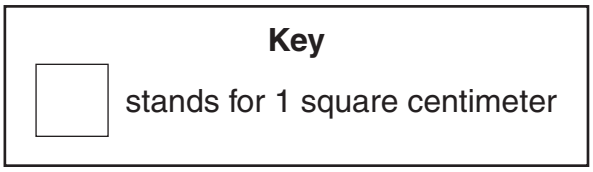
56. Maria drew the house on the grid shown below.





What is the area of the house in square centimeters?

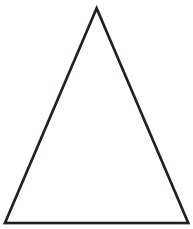
A. 16
B. 18
C. 20
D. 22

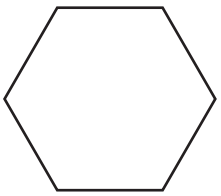
63. Mr. Felix bought 5 packs of ribbons. Each pack had 125 ribbons. He gave 380 ribbons to students. How many ribbons does Mr. Felix have left?

A. 245
B. 255
C. 355
D. 625

65. Which shape has **only** one pair of parallel sides?

A. 

B. 

C. 

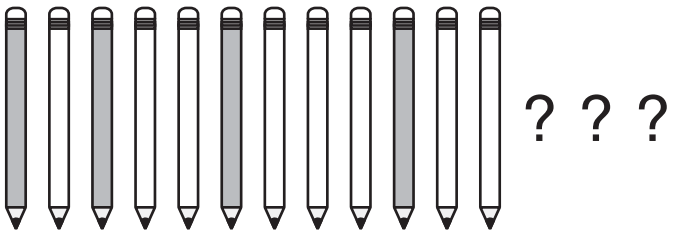
D. 

66. Ms. Hansen wants to know the favorite Field Day activities of fourth-grade students at her school. Which group would be the **best** for her to ask?

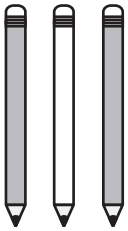
A. two fourth-grade teachers
B. two students in the school
C. all the students in one fourth-grade class
D. all the students in the school

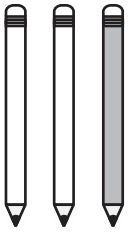
Please go on to the next page.

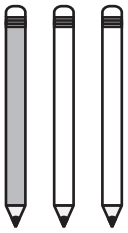
67. The pencils below follow a growing pattern.

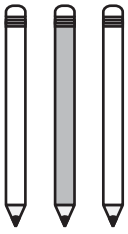


What are the next three pencils in the pattern?

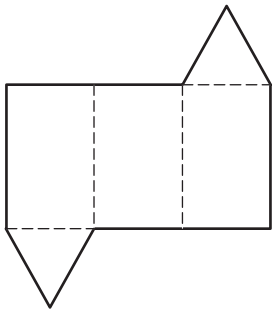
A. 

B. 

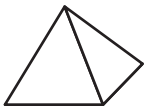
C. 

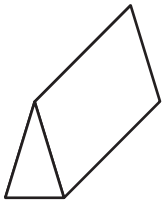
D. 

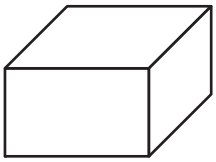
68. Lucas folded the pattern shown below to make a shape.

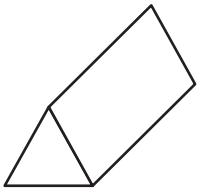


Which shape did Lucas make?

A. 

B. 

C. 

D. 

69. Glen wrote a pattern that follows the rule "multiply by 2." Which pattern did he write?

A. 5, 7, 9, 11, 13

B. 2, 5, 10, 15, 18

C. 4, 8, 16, 32, 64

D. 3, 6, 9, 12, 15

Please STOP. Do not go on to the next page.

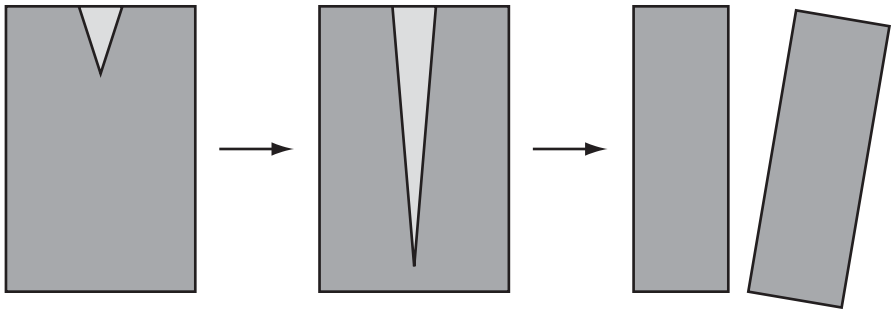
STOP

Science
Session 1

This test session includes multiple-choice questions and a question for which you must write out your answer. Be sure to answer all parts of the question.

Mark your answers in the section marked "Science—Session 1" in your Student Response Booklet.

1. The pictures below show what happens when water fills a small crack in a rock.



How does water cause a crack in a rock to become larger in a short period of time?

A. When the water freezes in the crack, the water expands and pushes against the rock.
B. When the Sun heats the water, the water expands and makes the crack bigger.
C. When the water mixes with the rock, the water causes larger cracks.
D. When the water washes over the rock, the crack becomes larger.

2. Which mixture is easiest to separate?

A. cake batter
B. gravy
C. salad dressing
D. trail mix

3. A hawk is flying high in the sky. Which part of the hawk **best** helps it find food?

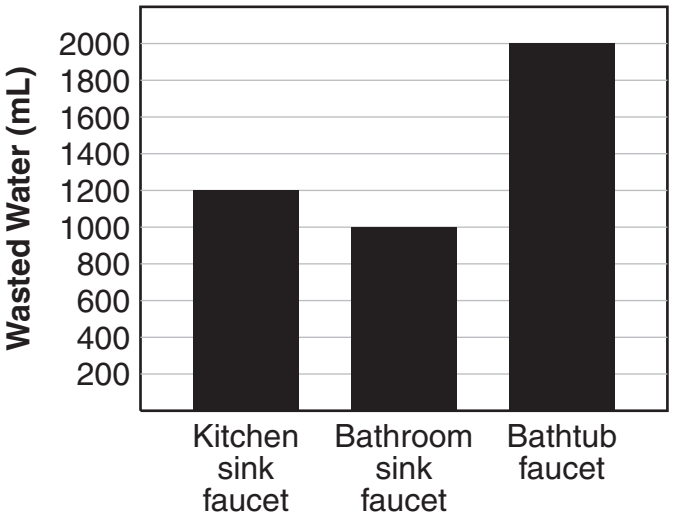
A. its curved beak
B. its keen eyesight
C. its long wings
D. its sharp claws

Please go on to the next page.

4. One morning, Diane investigated how much water is wasted when family members turn on faucets and wait for the water to get hot. She followed the procedure below.

> • She put containers under three different faucets to catch the wasted water.
> • She measured the water in each container.

The graph below shows the results of the investigation.



What is the **total** amount of wasted water collected in the investigation?

A. 1200 mL
B. 2000 mL
C. 4200 mL
D. 5000 mL

5. Which question would people in a town **most likely** ask a scientist?

A. Do we need a new elementary school?
B. How can we increase our water supply?
C. What can we do to attract new people?
D. Can we afford to hire more police officers?

8. A student does the investigation described below using a model to study how rivers erode earth materials.

> • She pours 500 mL of sand onto a plate.
> • She pours 250 mL of water onto the pile of sand.
> • She measures how much of the sand washes off the edge of the plate.
> • She notices that more sand washes off the plate when she pours the water quickly than when she pours it slowly.

How is the model similar to real rivers eroding earth materials?

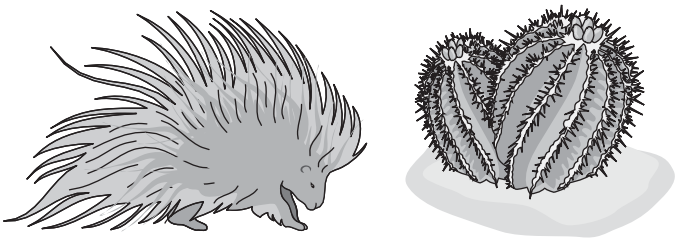
A. The model shows that faster-moving water erodes more earth materials than slower-moving water.
B. The model shows that slower-moving water erodes more earth materials than faster-moving water.
C. The model shows that faster-moving water makes sand stick to the bottom of a river.
D. The model shows that slower-moving water makes sand stick to the top of a river.

Please go on to the next page.

9. The use of which device is an example of electrical energy being turned into sound energy?

A. a doorbell
B. a drum
C. a flute
D. a lightbulb

10. The pictures below show a porcupine and a cactus.



What is **most** similar about these living things?

A. how they move
B. how they get their food
C. how they protect themselves
D. how they take in water

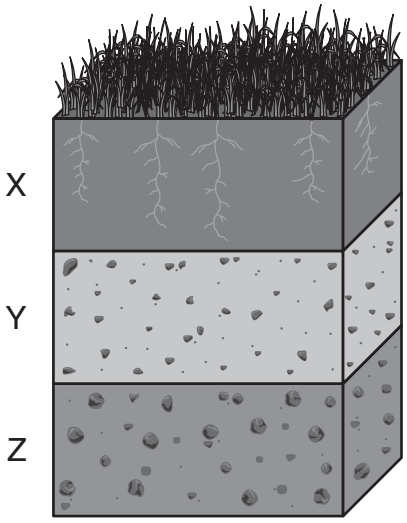
11. When liquid water disappears, what does it become?

A. a gas
B. a mixture
C. an element
D. a solvent

15. A student is planning an investigation to see if seeds need darkness to sprout. What is the **only** thing that should be changed in the investigation?

A. the amount of light
B. the age of the seeds
C. the temperature of the soil
D. the amount of water the seeds get

16. The picture below shows a soil sample.



What is **most likely** found in section X?

A. bedrock and large rocks
B. clay and large rock pieces
C. decomposed organic material
D. rock pieces and bedrock

Please go on to the next page.

17. A student investigated how temperature affects the amount of time it takes powdered plant food to dissolve in water. The table below shows the results of the investigation.

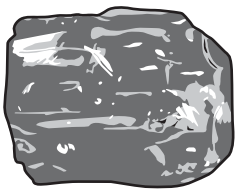
Collected Data

Amount of Powdered Plant Food (tablespoons)	Amount of Water (liters)	Water Temperature (Celsius)	Time to Dissolve (minutes)
1	1	22°	8
1	1	34°	6
1	1	75°	4
1	1	90°	1

At which water temperature does powdered plant food dissolve in the **least** amount of time?

A. 22°C
B. 34°C
C. 75°C
D. 90°C

18. The rock shown below contains iron and other materials.



The rock is crushed into rock powder, and the iron is taken out of the powder. How can iron be taken out of rock powder?

A. by using a magnet
B. by counting the particles
C. by placing the powder in water
D. by using a scale to weigh the powder

19. Which two parts of living things have the same function?

A. seed and ear
B. root and wing
C. tree bark and skin
D. leaf and tail fin

Please go on to the next page.

23. A mourning cloak butterfly has dark brown wings. In cool temperatures, the butterfly rests in a sunny spot to get ready to fly. How does the color of its wings help the butterfly get ready to fly in cool temperatures?

A. by allowing the butterfly to grow bigger

B. by allowing the butterfly to fly more quickly

C. by helping the butterfly get warm

D. by helping the butterfly stay safe

24. A fourth-grade student in Montana measured the temperature outside each day for five days. The table below shows the results in both degrees Celsius and degrees Fahrenheit.

Day	Temperature (°C)	Temperature (°F)
1	–3.8	25
2	–2.0	28
3	–1.0	30
4	–6.0	21
5	–8.3	17

The student measured the temperatures **most likely** during which season?

A. fall

B. winter

C. spring

D. summer

25. A student lives in Tucson, Arizona, which is shown on the map below.

Which terms describe the climate in Tucson?

A. cold and snowy

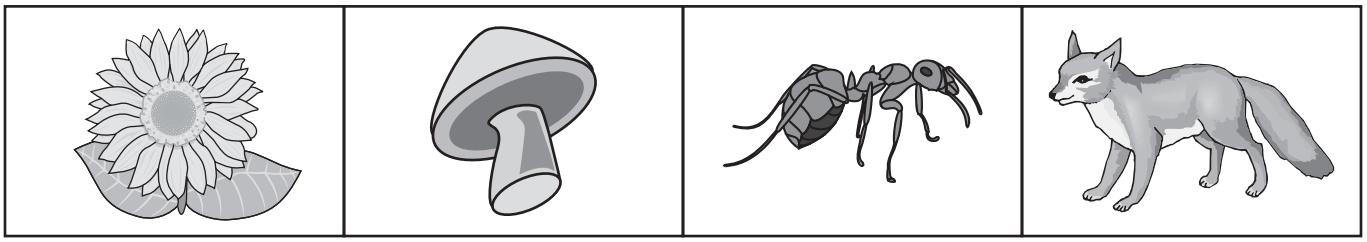
B. hot and dry

C. sunny and cool

D. warm and rainy

Please go on to the next page.

26. The pictures below show four different living things.



Flower | Mushroom | Ant | Fox

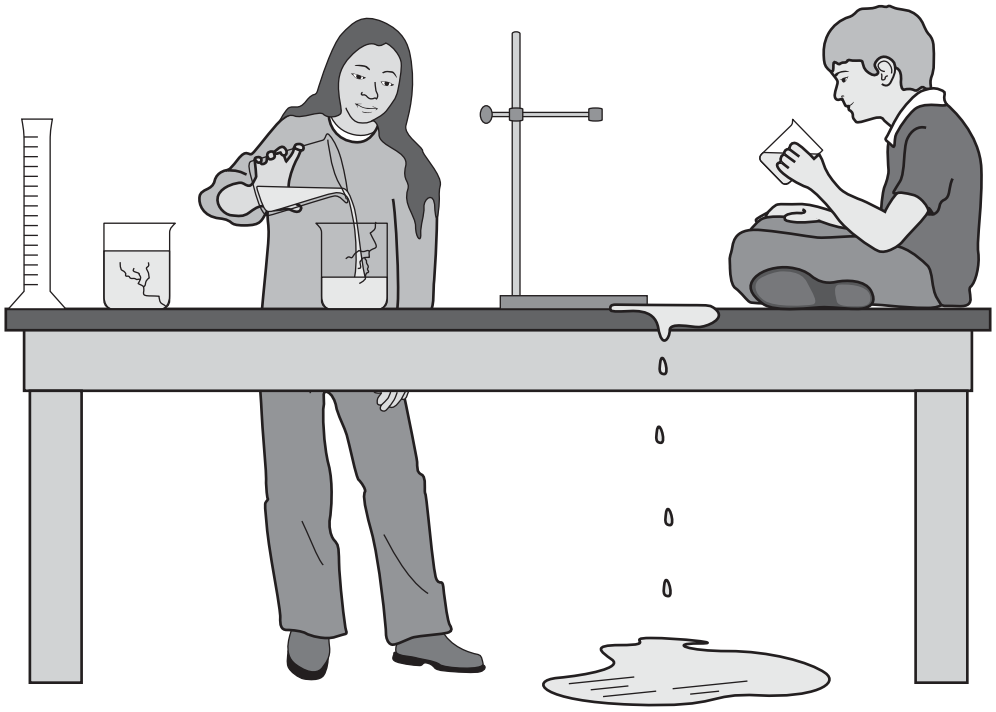
What do all of these living things need to survive?

A. heat
B. light
C. soil
D. water

Write your answer in the space provided for it in your Student Response Booklet.

27. The picture below shows students conducting an experiment in an unsafe school science work area.

Conducting an Experiment



Name **four** safety problems in the school science work area. Explain why each is a safety problem.

Please STOP. Do not go on to the next page.

STOP

Science
Session 2

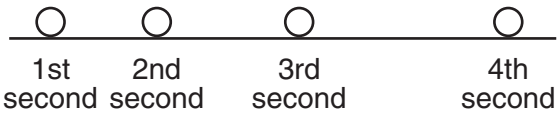
This test session includes multiple-choice questions.

Mark your answers in the section marked "Science—Session 2" in your Student Response Booklet.

28. Justin sees a beetle eating leaves on a plant in his backyard. He takes the beetle and the leaves home, places them in a container, and observes the beetle as it grows and changes. Which question can Justin **best** answer by observing the beetle for a few weeks?

    A. What animals eat the beetle?
    B. What kind of beetle is it?
    C. Why does the beetle have black stripes?
    D. How much does the beetle eat every day?

29. A ball is moving to a new position every second, as shown below.



    Which sentence **correctly** describes the motion of this ball?

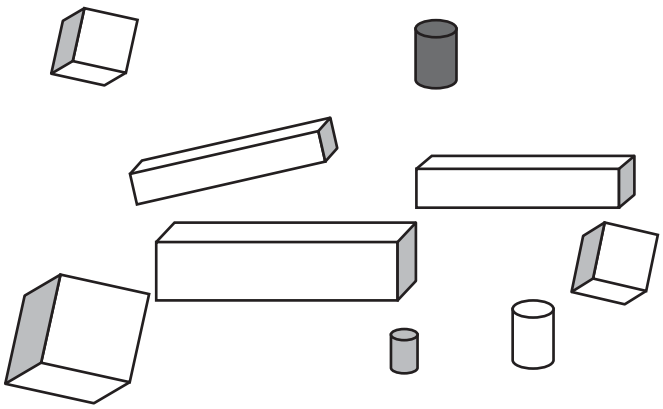
    A. It is speeding up.
    B. It is slowing down.
    C. It is moving in a circle.
    D. It is moving at a constant speed.

30. In the Northern Hemisphere, which season has the most hours of sunlight each day?

    A. fall
    B. spring
    C. summer
    D. winter

Please go on to the next page.

31. The wooden blocks shown below are many different sizes and shapes.



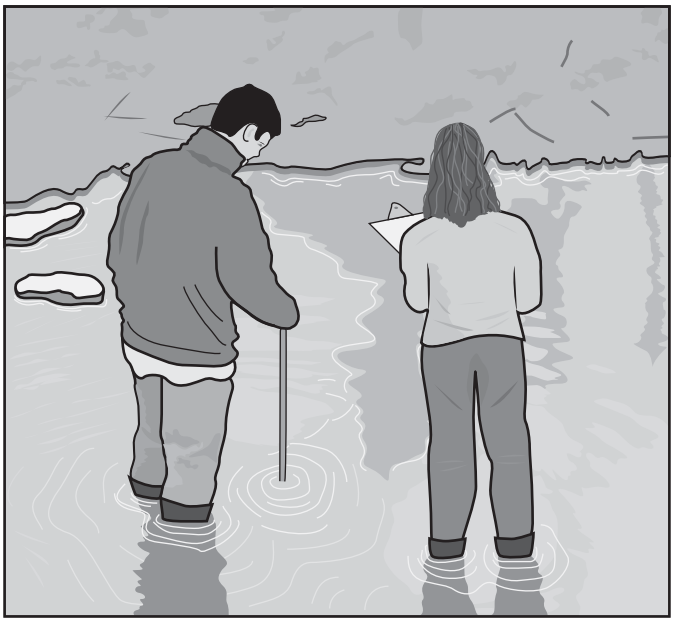
How can the blocks be sorted into three groups of three blocks each?

A. by color
B. by length
C. by shape
D. by size

35. A snowshoe hare's fur color changes from brown to white in the winter. Why is it important for the snowshoe hare's fur color to change?

A. It allows the snowshoe hare to survive when the environment changes.
B. It allows other animals to see the snowshoe hare in different environments.
C. It keeps the snowshoe hare cooler in the winter.
D. It keeps the snowshoe hare warmer in the summer.

36. Two students are investigating whether rain causes the depth of a stream to increase, as shown below.



The students use a meterstick to measure the depth of the stream once a day and then record the results. How can the students make sure the data they record are correct?

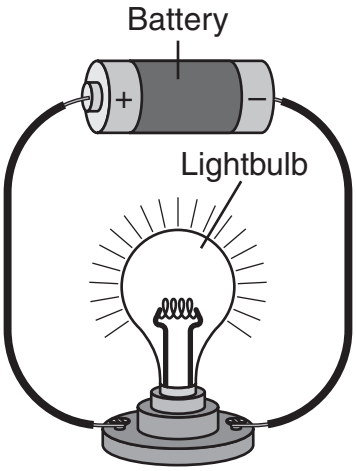
A. by using a different meterstick each day
B. by measuring the same spot in the stream
C. by measuring at different times each day
D. by removing data that is bigger than the rest

Please go on to the next page.

37. Which environmental problem can Montana ranchers help prevent by **not** allowing cattle to overgraze grasslands?

A. acid rain
B. air pollution
C. mineral waste
D. soil erosion

38. The picture below shows a simple circuit.



If another battery is added to the circuit, what will **most likely** happen to the light produced by the lightbulb?

A. The light will be brighter.
B. The light will not be produced.
C. The light will be dimmer.
D. The light will flash on and off.

42. Scientists have discovered that the rings of Saturn are made of pieces of material as small as dust particles and as big as houses. How did they make this discovery?

A. by visiting Saturn in an airplane similar to a shuttle
B. by finding pieces of the rings of Saturn on Earth
C. by viewing pictures taken by a spacecraft
D. by using a telescope on Earth

43. The picture below shows a glass filled with ice.

What state of matter is the ice?

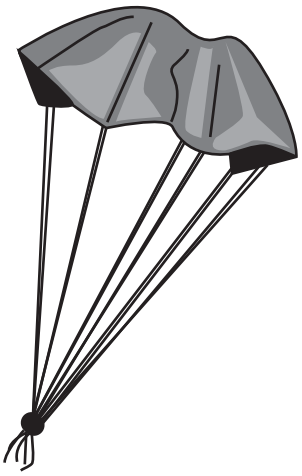
A. gas
B. liquid
C. mixture
D. solid

Please go on to the next page.

44. Which thing does **not** need food to grow?

A. a bean seed
B. a pinecone
C. a rock
D. a worm

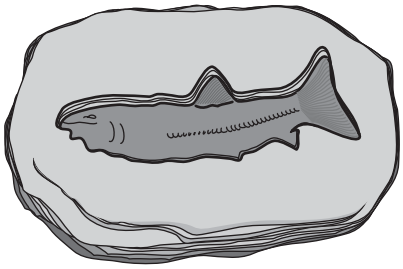
45. Students used cotton cloth, paper, and plastic bags to make parachutes like the one shown below.



To investigate which material works best for parachutes, the students dropped each parachute and measured the time it took to reach the ground. What **must** the students do to make sure their results are correct?

A. go outdoors to test the parachutes
B. pick a different color material for each parachute
C. drop the parachutes from the same height
D. use a different design for each parachute

46. The picture below shows a fossil.



Where was this fossil **most likely** formed?

A. in a cold, icy glacier
B. on a blacktop highway
C. on a hard, rocky surface
D. in a soft, sandy area of a river

Please go on to the next page.

50. The picture below shows a flea.

Flea

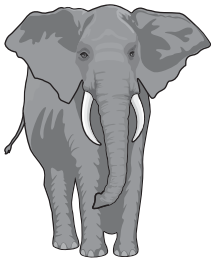
Which animal is **most** similar to the flea?

A. 

Bee

B. 

Dog

C. 

Elephant

D. 

Skunk

51. Which two living things eat almost the same kinds of food?

A. cow and rabbit

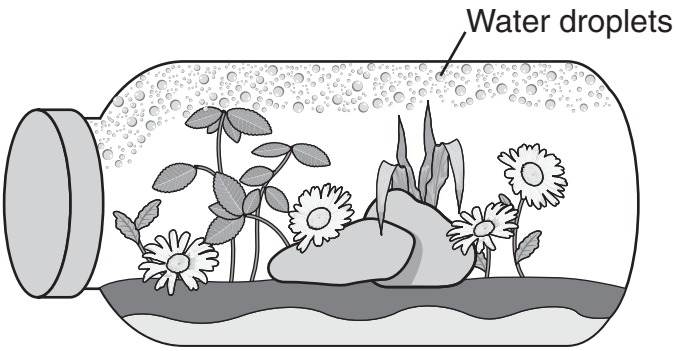
B. hawk and chicken

C. lion and deer

D. tree and mouse

Please go on to the next page.

52. The picture below shows a terrarium in which water droplets have formed.



What caused water droplets to form inside the terrarium?

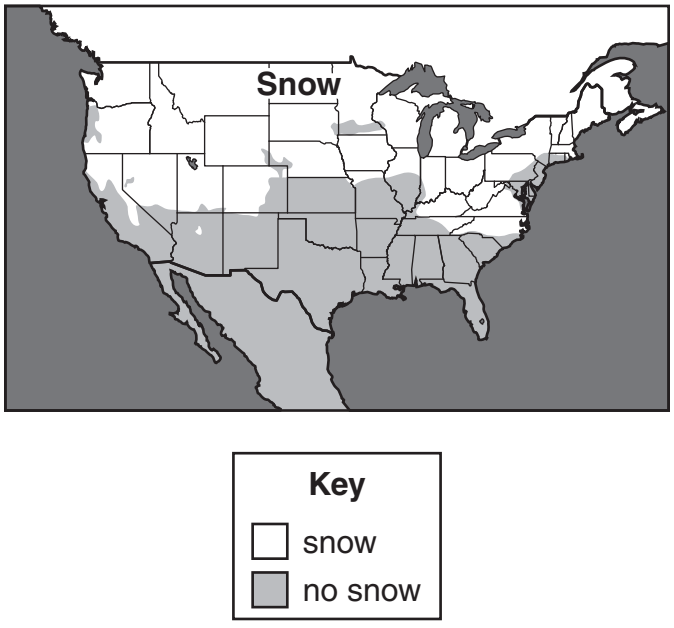
A. The plants and soil inside increased in temperature.

B. Water from the plants and soil inside evaporated and condensed.

C. The plants and soil inside reacted to precipitation outside the bottle.

D. Weathering of the plants and soil inside produced moisture.

53. The map below shows which parts of the country are covered with snow.



This snow was present **most likely** during which month?

A. August

B. January

C. May

D. September

Please STOP. Do not go on to the next page.

STOP

Science
Session 3

This test session includes multiple-choice questions and a question for which you must write out your answer. Be sure to answer all parts of the question.

Mark your answers in the section marked "Science—Session 3" in your Student Response Booklet.

55. Scientists and inventors today are working to improve the technologies listed below.

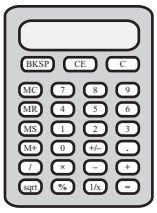
- using windmills to generate electricity
- using the Sun to heat buildings
- using fuel made from corn and soybeans to run engines

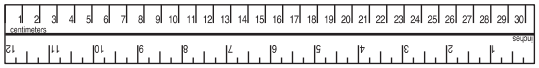
Why are scientists and inventors working to improve these technologies?

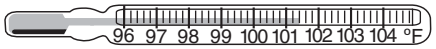
A. to increase the world's food supply
B. to increase how long people live
C. to reduce pollution caused by burning fossil fuels
D. to reduce overpopulation in the world's largest cities

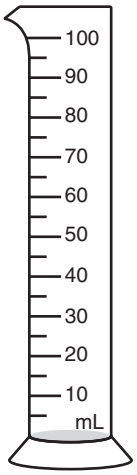
56. The picture below shows liquid in a jar.

Which instrument should be used to measure the amount of liquid in the jar?

A. 

B. 

C. 

D. 

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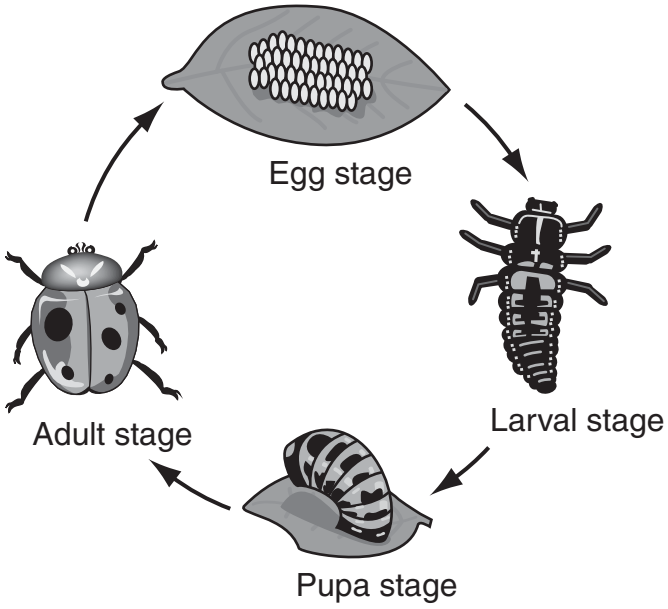
57. In 1957, the first satellite was launched into orbit around Earth. Why do more than 3000 satellites orbit Earth today?

A. to explore the center of Earth
B. to find new places for people to live
C. to send information back to Earth
D. to serve as new places to grow food

58. A ladybug's life cycle is shown below.



What does a ladybug do in the adult stage of its life?

A. change its shape
B. eat a lot and grow
C. form body parts
D. mate and lay eggs

59. Hundreds of years ago, most people believed the ideas listed below.

- Earth is flat.
- The Sun orbits Earth.
- Evil spirits cause diseases.

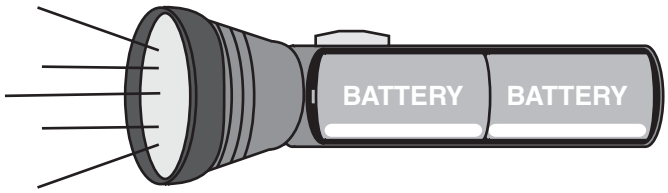
How did scientists prove these ideas were incorrect?

A. by collecting data about nature and the universe
B. by examining ideas of local people
C. by watching different forms of matter
D. by doing experiments in laboratories

62. A scientist is measuring the masses of different burrowing owls. Which unit of measure is **best** for the scientist to use?

A. grams
B. liters
C. meters
D. seconds

63. A flashlight holds two batteries, as shown below.

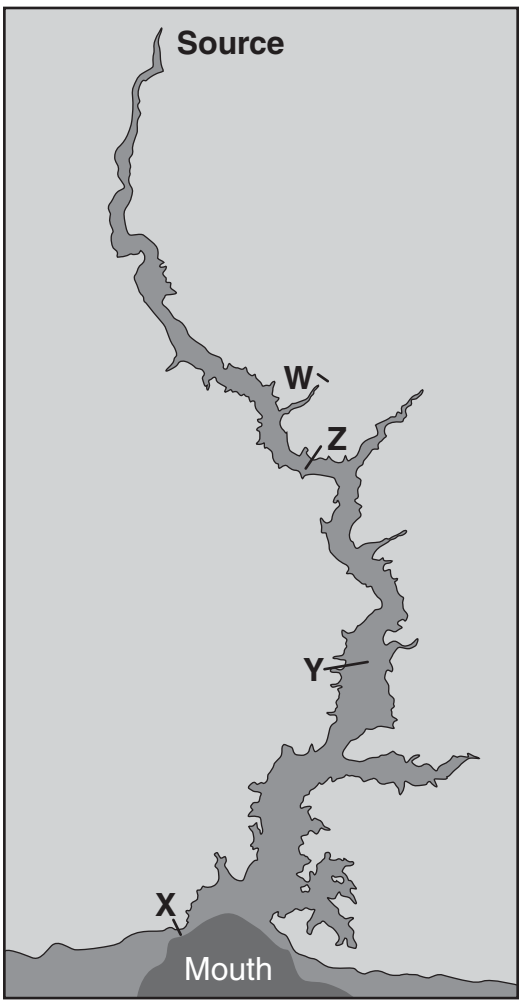


What are the **most** useful forms of energy in the flashlight?

A. electrical and light
B. heat and electrical
C. magnetic and heat
D. sound and motion

Please go on to the next page.

64. The picture below shows the path of a river from its source to its mouth.



At which location would the **most** sediment be deposited?

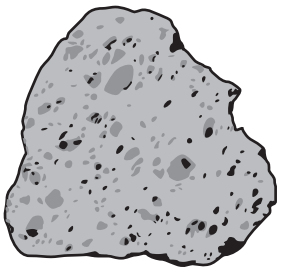
A. location W
B. location X
C. location Y
D. location Z

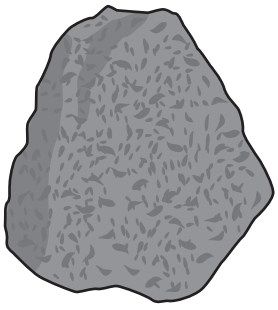
65. A student chooses a bag of almonds and raisins for a snack. Why is this a healthy snack for the student?

A. It provides the greatest amount of sugars.
B. It provides a high amount of calories.
C. It provides vitamins and minerals.
D. It provides proteins and a high amount of fats.

69. Ben finds a rock that is shiny, smooth, and mostly one color. Which rock **best** fits this description?

A. 

B. 

C. 

D. 

Please go on to the next page.

70. Which example is a learned behavior an animal uses when looking for food?

A. a bird singing a mating song

B. a goose flying south for the winter

C. a horse eating grass

D. a raccoon tipping over a garbage can

71. The picture below shows a campfire.

What are the **most** useful types of energy in a campfire?

A. heat and light

B. chemical and sound

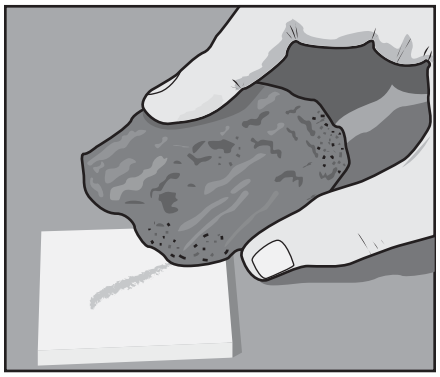
C. electrical and motion

D. sound and magnetic

72. Streak is the color a mineral leaves behind when rubbed across a white tile. The table below shows the streak colors of four minerals.

Mineral	Streak Color
Hematite	Bloodred
Galena	Lead gray
Gold	Yellow
Pyrite (fool's gold)	Brassy yellow

A student found a red mineral near her school. Her teacher allowed her to rub the mineral across a white tile. The mineral left a gray color on the tile, as shown below.



Based on the table, what is the **most likely** name of the mineral the student found?

A. hematite

B. galena

C. gold

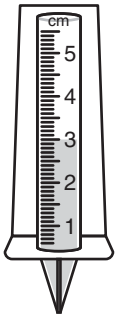
D. pyrite

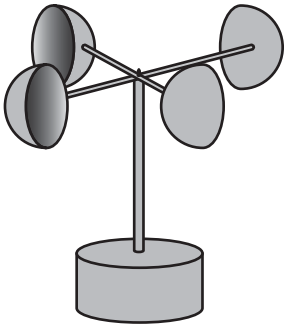
Please go on to the next page.

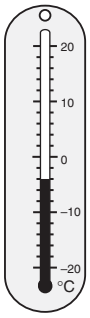
73. Which skill does a young polar bear learn from its parents?

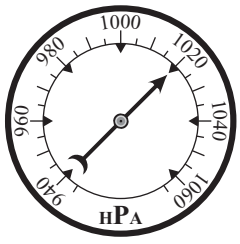
A. eating meat
B. hunting seals
C. running fast
D. swimming well

77. Which weather tool is used to measure rainfall?

A. 

B. 

C. 

D. 

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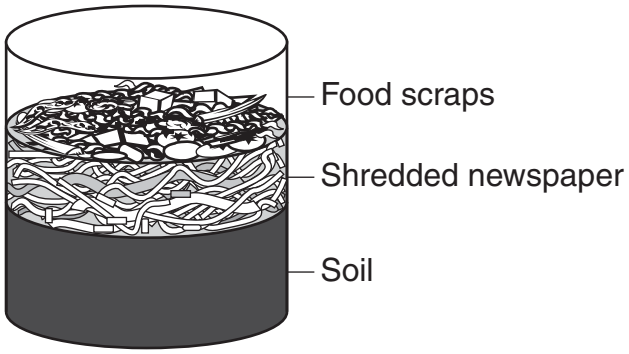
78. Students in a fourth-grade class made a worm farm like the one shown below.



How are worms in a worm farm **different** from worms that live in soil outside?

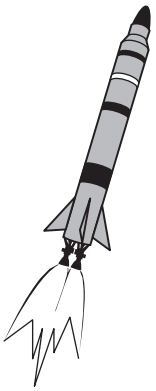
A. Worms in a worm farm are protected from predators.

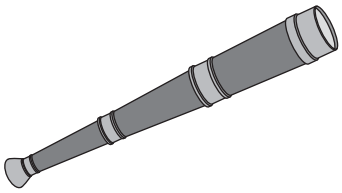
B. Worms in soil outside move by making their bodies stretch and then shorten.

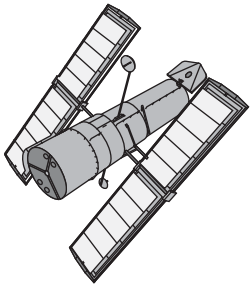
C. Worms in a worm farm eat by swallowing soil and food.

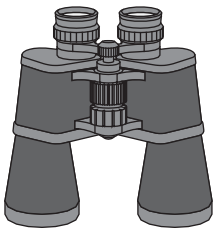
D. Worms in soil outside are protected from receiving too much rainwater.

79. Which device was **first** used to help scientists learn about planets and stars?

A. 

B. 

C. 

D. 

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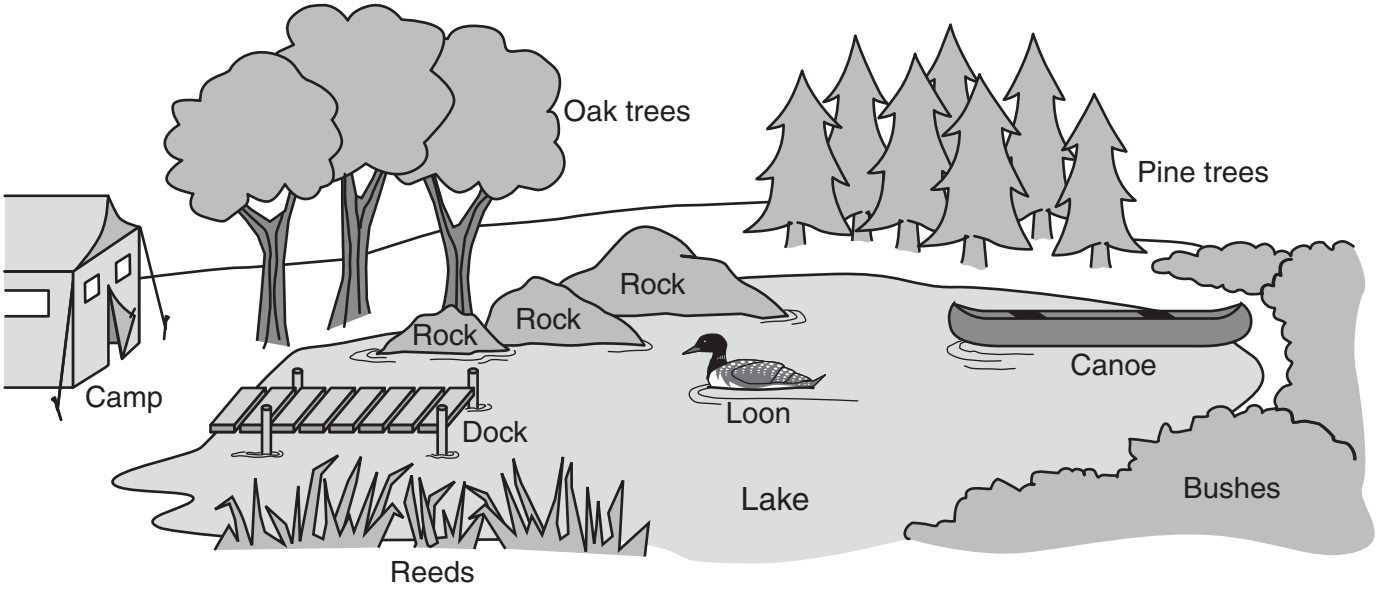
80. A student put a set of animal pictures together. Each animal in the set lives in water, has a backbone, and breathes with gills. Which other animal belongs in this set?

A. a snake
B. a trout
C. a turtle
D. a whale

Write your answer in the space provided for it in your Student Response Booklet.

81. Look at the picture below.



Describe the position of the loon by locating it relative to **four** other objects.

Please STOP. STOP

Acknowledgments

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